

Appl. No. 09/661,481
Amdt. dated September 1, 2004
Reply to Office action of June 29, 2004

In the Claims:

Claims 1-3 are amended in this response.

1. (currently amended) A gas laser apparatus emitting ultraviolet radiation, comprising:

a laser chamber;

a magnetic pulse compression circuit; and

a pair of laser discharge electrodes connected to output terminals of said magnetic pulse compression circuit and disposed in said laser chamber,

wherein a laser oscillating operation is performed by a first half-cycle and at least one half-cycle subsequent to the first half-cycle of a discharge oscillating current waveform of one pulse in which a polarity is reversed, and

wherein said discharge oscillating current flows between the discharge electrodes.

2. (currently amended) A gas laser apparatus emitting ultraviolet radiation according to claim 1, which is an ArF excimer laser apparatus, wherein said magnetic pulse compression circuit has:

a series circuit including a first magnetic switch and a first capacitor;

a second capacitor connected to both ends of said series circuit; and

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a second magnetic switch connected at one end thereof to a junction between said first magnetic switch and said second ~~capacitor~~, capacitor,

wherein the other end of said second magnetic switch and the other end of said second capacitor constitute said output ~~terminals~~, terminals,

wherein when a capacitance of said second capacitor is 12 to 16 nF, ~~and~~ a capacitance of a peaking capacitor of said laser apparatus that is connected between said output terminals in parallel to said pair of laser discharge electrodes is 10 to 16 nF, ~~and further~~ an inductance of a circuit loop formed by said peaking capacitor and said pair of laser discharge electrodes is 5 to 8 nH, ~~and further~~ a distance between said pair of laser discharge electrodes is 15 to 20 mm, ~~and further~~ a partial pressure of fluorine in said laser chamber is less than 0.12% of a total pressure of a laser gas, and

a rise time required for a voltage applied between said pair of laser discharge electrodes to reach a voltage at which breakdown occurs is not more than 80 ns.

3. (currently amended) A gas laser apparatus emitting ultraviolet radiation according to claim 2, wherein the voltage at which breakdown occurs between said pair of laser

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discharge electrodes is from 18 to 28 ~~kV~~, kV and said rise
time of the voltage is not less than 40 ns.